

CLAIM(S)

I/we claim:

[0073] 1. An intrusion detection system comprising:

- 5 [0074] (a) a pair of optical lenses arranged a predetermined distance apart and having overlapping fields of view within an area to be monitored to form a common field of view;
- [0075] (b) at least one light-sensitive device responsive to light from each of the optical lenses;
- 10 [0076] (c) a range detector responsive to signals from said light-sensitive device operable to determine a range to an object within the common field of view; and
- [0077] (d) a range discriminator for setting at least one range gate so as to sense objects within said common field of view at predetermined ranges and for ignoring objects that appear outside of said predetermined ranges.

15 [0078] 2. The intrusion detection system of claim 1 further including a light-sensitive device for each lens.

[0079] 3. The intrusion detection system of claim 1 wherein the light-sensitive devices include
20 light-sensitive elements arranged in lines of pixels operably selected by the range discriminator to define the ranges included within the range gate.

[0080] 4. The intrusion detection system of claim 3 wherein multiple sets of lines of pixels are operably selected by the range discriminator to provide multiple range gates for the selective
25 detection of objects within said common field of view.

[0081] 5. The intrusion detection system of claim 4 further including a velocity detector responsive to signals from a light-sensitive device and operable to determine velocity of an object sensed by said range detector within the ranges spanned by said range gates.

30 [0082] 6. An intrusion detection system for monitoring a secure area comprising:

- [0083] (a) a pair of electro-optical devices arranged a predetermined distance apart having a common field of view in the secure area to be monitored, each electro-optical device comprising a lens and a light-sensitive element, each

light-sensitive element having a pixel array of multiple lines of pixels; and
[0084] (b) a data processing device responsive to the light-sensitive element of each
electro-optical device, the data processing device having a range detector to
detect the presence of objects in the area to be monitored, said data processing
5 device including a range gate selector for discriminating among said objects
sensed by the range detector by extracting image data from selected ones of
said multiple lines of pixels in each said respective pixel array.

[0085] 7. The intrusion detection system of claim 6 wherein said range gate selector is operable
10 to create multiple zones of ranges within said secure area to be monitored.

[0086] 8. The intrusion detection system of claim 6 wherein said data processing device further
includes a velocity detector for determining velocity of objects detected by said range detector.

15 [0087] 9. The intrusion detection system of claim 1 wherein the area to be monitored is defined
at least in part by a horizontal ground surface and the pair of optical lenses are situated a
predetermined distance above the horizontal ground surface and have lines of sight that intersect
the horizontal ground surface at predetermined distances from the lenses.

20 [0088] 10. The intrusion detection system of claim 9 further including a light-sensitive device
for each lens.

[0089] 11. The intrusion detection system of claim 9 wherein the light-sensitive devices include
light-sensitive elements arranged in lines of pixels operably selected by the range discriminator
25 to define the ranges included within the range gate.

[0090] 12. The intrusion detection system of claim 11 wherein multiple sets of lines of pixels
are operably selected by the range discriminator to provide multiple range gates for the selective
detection of objects within said common field of view.

30 [0091] 13. The intrusion detection system of claim 12 further including a velocity detector
responsive to signals from a light-sensitive device and operable to determine velocity of an
object sensed by said range detector within the ranges spanned by said range gates.

[0092] 14. An intrusion detection system for monitoring a secured area comprising:

[0093] (a) a pair of passive electro-optical sensors, each sensor including a lens and a light-sensitive device having rows of electronically scanned pixel elements, each row of pixel elements being responsive to light from objects appearing within said area at respective ranges, said pair of sensors being mounted a predetermined distance apart and aimed downward into said secured area at an angle obtuse to a horizontal reference line; and

[0094] (b) a data processing module coupled to the light-sensitive devices and having a range gate selector for selecting predetermined lines of pixels for processing scanned image data from objects appearing at predetermined ranges.

[0095] 15. The intrusion detection system of claim 14 wherein said range gate selector is operable to create multiple zones of ranges within said secure area to be monitored.

[0096] 16. The intrusion detection system of claim 14 wherein said data processing device further includes a velocity detector for determining velocity of objects detected by said range detector.